

NRC REGION III
INITIAL LICENSE EXAM
JOB PERFORMANCE MEASURE

JPM: RO SYSTEM f

**TITLE: PLACE THE ZERO POWER MODE
BYPASS IN OPERATION**

CANDIDATE: _____

EXAMINER: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Insert, remove, or test the Reactor Protection System Zero Power Mode Bypass.

Alternate Path: NO

Facility JPM #: PL-OPS-RPS-003J

K/A: 012A4.03 Importance: RO: 3.6 SRO: 3.6

K/A Statement: Ability to manually operate and/or monitor in the control room: Channel blocks and bypasses

Task Standard: Zero Power Mode Bypass placed in operation.

Preferred Evaluation Location: Simulator In Plant

Preferred Evaluation Method: Perform Simulate

References: SOP-36, Reactor Protective System And Anticipated Transient Without Scram (ATWS) System

Validation Time: 10 minutes Time Critical: NO

Candidate: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT _____ UNSAT _____

Comments:

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

- SOP-36, Reactor Protective System And Anticipated Transient Without Scram (ATWS) System, Section 7.2.1, Rev. 10

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

- Plant is in Mode 5.
- Wide Range NIs (NI-3 and NI-4) are operable.
- All Control Rod Drive clutch power toggle switches are in the OFF position.
- Technical Specification requirements for LCO 3.3.1 and Table 3.3.1 are met.

INITIATING CUES:

- Per SOP-36 Section 7.2.1, you are directed to place the Zero Power Mode Bypass in operation.

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
n/a	Locate SOP-36, Section 7.2.1, To Place Zero Power Mode Bypass In operation	SOP-36, section 7.2.1, located	S U
Comment: Note: <i>Evaluator provides candidate with a Working Copy.</i>			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
7.2.1a	ENSURE BOTH Wide Range NIs (NI-1/3 and NI-2/4) are operable, REFER TO Technical Specifications LCO 3.3.1	Both Wide Range NIs (NI-1/3 and NI-2/4) are determined operable (given in initial conditions)	S U
Comment:			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
7.2.1b	ENSURE power level less than 10^{-4} % RTP	Power level verified less than $10E-4$ % RTP	S U
Comment:			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
7.2.1c	<u>WHEN</u> in Modes 3, 4 or 5 <u>THEN VERIFY</u> <u>OR</u> no more than one full-length control rod capable of being withdrawn	All control rod drive clutch power toggle switches are verified in the OFF position (given in initial conditions)	S U
Comment:			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
7.2.1d.1	<p>PERFORM the following on the desired Channel to place the ZPM Bypass in service:</p> <ol style="list-style-type: none"> INSERT key in ENABLE switch AND TURN clockwise to enable the desired Channel (A): <ul style="list-style-type: none"> Channel A (Key 287) 	Key 287 inserted in Channel A switch and turned clockwise until key stops	S U
<p>Comment: NOTE: <i>EK-06 Rack D #1 (Zero Power Mode Bypass) will alarm.</i></p> <p>NOTE: <i>Evaluator: It is permissible to insert key and enable Channels in any order, as well as inserting keys into all the Channels, enabling, and then testing the lights. JPM written as enabling 'one' channel at a time.</i></p> <p>CRITICAL STEP</p>			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
7.2.1d.2	<p>PRESS EACH of the four test switches one at a time AND VERIFY the associated lights above each switch remain off (Channel A).</p> <ul style="list-style-type: none"> 'LO FLOW ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'LO PRESS SG-1 ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'LO PRESS SG-2 ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'TM/LP ZPM SW OFF' and 'ZPM AUTO D'ABLE' 	<p>Four test switches pushed on ZPM Channel 'A' and associated lights above each verified off:</p> <ul style="list-style-type: none"> 'LO FLOW ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'LO PRESS SG-1 ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'LO PRESS SG-2 ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'TM/LP ZPM SW OFF' and 'ZPM AUTO D'ABLE' <p>Lights remain OFF</p>	S U
<p>Comment:</p>			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
7.2.1d.3	<p>RESET the RPS Trip telltales (Channel A)</p>	<p>RPS Trip telltales pressed on 'A' Channel RPS for:</p> <ul style="list-style-type: none"> • Low Flow, the (red) 'Trip' light goes out. • Low Level S/G 1, the (red) 'Trip' light goes out. • Low Level S/G 2, the (red) 'Trip' light goes out. • Thermal Margin/Low Pressure, the (red) 'Trip' light goes out. 	<p>S U</p>
<p>Comment:</p> <p>Note: <i>The (white) pre-trip light stays on.</i></p>			

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
7.2.1d.1	<p>PERFORM the following on the desired Channel to place the ZPM Bypass in service:</p> <ol style="list-style-type: none"> 1. INSERT key in ENABLE switch AND TURN clockwise to enable the desired Channel (B): <ul style="list-style-type: none"> ▪ Channel B (Key 286) 	<p>Key 286 inserted in Channel B switch and turned clockwise until key stops</p>	<p>S U</p>
<p>Comment:</p> <p>CRITICAL STEP</p>			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
7.2.1d.2	<p>PRESS EACH of the four test switches one at a time AND VERIFY the associated lights above each switch remain off (Channel B).</p> <ul style="list-style-type: none"> • 'LO FLOW ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'LO PRESS SG-1 ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'LO PRESS SG-2 ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'TM/LP ZPM SW OFF' and 'ZPM AUTO D'ABLE' 	<p>Four test switches pushed on ZPM Channel 'B' and associated lights above each verified off:</p> <ul style="list-style-type: none"> • 'LO FLOW ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'LO PRESS SG-1 ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'LO PRESS SG-2 ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'TM/LP ZPM SW OFF' and 'ZPM AUTO D'ABLE' <p>Lights remain OFF</p>	S U
<p>Comment:</p>			

Proc. Step	TASK ELEMENT 10	STANDARD	Grade
7.2.1d.3	<p>RESET the RPS Trip telltales (Channel B)</p>	<p>RPS Trip telltales pressed on 'B' Channel RPS for:</p> <ul style="list-style-type: none"> • Low Flow, the (red) 'Trip' light goes out. • Low Level S/G 1, the (red) 'Trip' light goes out. • Low Level S/G 2, the (red) 'Trip' light goes out. • Thermal Margin/Low Pressure, the (red) 'Trip' light goes out. 	S U
<p>Comment:</p> <p>Note: <i>The (white) pre-trip light stays on.</i></p>			

Proc. Step	TASK ELEMENT 11	STANDARD	Grade
7.2.1d.1	<p>PERFORM the following on the desired Channel to place the ZPM Bypass in service:</p> <ol style="list-style-type: none"> INSERT key in ENABLE switch AND TURN clockwise to enable the desired Channel (C): <ul style="list-style-type: none"> Channel C (Key 285) 	Key 285 inserted in Channel C switch and turned clockwise until key stops	S U
<p>Comment:</p> <p>CRITICAL STEP</p>			

Proc. Step	TASK ELEMENT 12	STANDARD	Grade
7.2.1d.2	<p>PRESS EACH of the four test switches one at a time AND VERIFY the associated lights above each switch remain off (Channel C).</p> <ul style="list-style-type: none"> 'LO FLOW ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'LO PRESS SG-1 ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'LO PRESS SG-2 ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'TM/LP ZPM SW OFF' and 'ZPM AUTO D'ABLE' 	<p>Four test switches pushed on ZPM Channel 'C' and associated lights above each verified off:</p> <ul style="list-style-type: none"> 'LO FLOW ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'LO PRESS SG-1 ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'LO PRESS SG-2 ZPM SW OFF' and 'ZPM AUTO D'ABLE' 'TM/LP ZPM SW OFF' and 'ZPM AUTO D'ABLE' <p>Lights remain OFF</p>	S U
<p>Comment:</p>			

Proc. Step	TASK ELEMENT 13	STANDARD	Grade
7.2.1d.3	<p>RESET the RPS Trip telltales (Channel C)</p>	<p>RPS Trip telltales pressed on 'C' Channel RPS for:</p> <ul style="list-style-type: none"> • Low Flow, the (red) 'Trip' light goes out. • Low Level S/G 1, the (red) 'Trip' light goes out. • Low Level S/G 2, the (red) 'Trip' light goes out. • Thermal Margin/Low Pressure, the (red) 'Trip' light goes out. 	<p>S U</p>
<p>Comment: Note: <i>The (white) pre-trip light stays on.</i></p>			

Proc. Step	TASK ELEMENT 14	STANDARD	Grade
7.2.1d.1	<p>PERFORM the following on the desired Channel to place the ZPM Bypass in service:</p> <ol style="list-style-type: none"> 1. INSERT key in ENABLE switch AND TURN clockwise to enable the desired Channel (D): <ul style="list-style-type: none"> ▪ Channel D (Key 288) 	<p>Key 288 inserted in Channel D switch and turned clockwise until key stops</p>	<p>S U</p>
<p>Comment: CRITICAL STEP</p>			

Proc. Step	TASK ELEMENT 15	STANDARD	Grade
7.2.1d.2	<p>PRESS EACH of the four test switches one at a time AND VERIFY the associated lights above each switch remain off (Channel D).</p> <ul style="list-style-type: none"> • 'LO FLOW ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'LO PRESS SG-1 ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'LO PRESS SG-2 ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'TM/LP ZPM SW OFF' and 'ZPM AUTO D'ABLE' 	<p>Four test switches pushed on ZPM Channel 'D' and associated lights above each verified off:</p> <ul style="list-style-type: none"> • 'LO FLOW ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'LO PRESS SG-1 ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'LO PRESS SG-2 ZPM SW OFF' and 'ZPM AUTO D'ABLE' • 'TM/LP ZPM SW OFF' and 'ZPM AUTO D'ABLE' <p>Lights remain OFF</p>	S U
<p>Comment:</p>			

Proc. Step	TASK ELEMENT 16	STANDARD	Grade
7.2.1d.3	<p>RESET the RPS Trip telltales (Channel D)</p>	<p>RPS Trip telltales pressed on 'D' Channel RPS for:</p> <ul style="list-style-type: none"> • Low Flow, the (red) 'Trip' light goes out. • Low Level S/G 1, the (red) 'Trip' light goes out. • Low Level S/G 2, the (red) 'Trip' light goes out. • Thermal Margin/Low Pressure, the (red) 'Trip' light goes out. 	S U
<p>Comment:</p> <p>Note: <i>The (white) pre-trip light stays on.</i></p>			

Proc. Step	TASK ELEMENT 17	STANDARD	Grade
n/a	Notify the CRS that Zero Power Mode Bypass is in operation	CRS notified Zero Power Mode Bypass in operation	S U
<p>Comment:</p>			

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- Plant is in Mode 5.
- Wide Range NIs (NI-3 and NI-4) are operable.
- All Control Rod Drive clutch power toggle switches are in the OFF position.
- Technical Specification requirements for LCO 3.3.1 and Table 3.3.1 are met.

INITIATING CUES:

- Per SOP-36 Section 7.2.1, you are directed to place the Zero Mode Bypass in operation.

SIMULATOR OPERATOR INSTRUCTIONS

- IC-10, Mode 5
- Ensure Zero Mode Bypass is removed per SOP-36, Section 7.2.2.
- Ensure all Clutch Power toggle switches are in the OFF position.